

**Privacy Enhanced Methods and Apparatuses For Conducting Electronic
Communications**

BACKGROUND OF THE INVENTION

5

1. **Field of the Invention**

The present invention relates to the field of information systems. More specifically, the present invention relates to electronic communications and privacy.

10 2. **Background Information**

Advances in computer technology have led to personalization of computers. Once reserved for large enterprises, computers have become affordable and available to the masses. Coupled that with advances in networking and telecommunication technologies, increasingly computers are being networked together. Companies are racing to put their businesses on public data networks, such as the Internet. Other non-profit and government entities are doing the same. Information has become readily available with a few mouse clicks. As a result, increasingly users go on-line to electronically communicate with each other through emails, get their news, do their shopping, meet their friends or simply other users on-line.

Currently, under the prior art, a more sophisticated user may have as many as a handful of email addresses, a work related email address hosted by the IT establishment of the user's employer, a personal email address hosted by the user's Internet access provider (as part of the "access service"), and one or more personal email addresses hosted by the free email services, such as Hotmail.com, Yahoo mail, and the like (to attract the user to visit the site). The user might use the work

related email address for work related communication only, and the other email addresses for personal communications, thereby segregating the personal communications from the scrutiny of the employer. The user might further use the personal email address hosted by the access provider for personal communications with certain group of users, such as friends and family members, while using the personal email addresses hosted by the free email service providers for general communication with other users/establishments of no particular relationship, including content and service providers, e-commerce sites, and the like.

Like its brethren of the earlier era, the "snail" mail, to many users, one of the most annoying aspects of this modern world of electronic communications is the receipt of unsolicited emails, often referred to as SPAM mails. The problem is further compounded by the fact that many Internet access, content, and service providers, e-commerce sites and the like (hereinafter, simply web sites or web site operators) routinely sell their email lists to other parties of interest. When viewing an "in-box", there is no easy way to distinguish between the legitimate mails from the illegitimate mails. The problem is even worse, if the user consolidates all his/her emails of the various email accounts into a single "in-box" (for ease-of-use).

Thus, a more user friendly, in particular, a more private approach to conducting electronic communications is desired.

SUMMARY OF THE INVENTION

A computer (or device of the like), on behalf of a user, registers the user with a first web site. The computer provides a first email address for use to register the user with said first web site. The computer, on behalf of the user, registers the user with a second web site. The computer provides a second email address, separate and distinct from the first email address, for use to register said user with said second web site.

In alternate embodiments, the computer, in like manner, facilitates designations of first and second email addresses for use to electronically communicate with first and second intended communication partners.

Sub A 7 Co-related, an email service provider receives emails for the first and second email addresses of the user, and organizes the received emails by at least the email addresses, and by intended versus non-intended CP/GCP of the email addresses.

The email service provider provides these received emails to the computer used the user, with the emails so characterized accordingly.

The computer presents these emails for viewing by the user, including in one embodiment, facilitation of deletion of all emails addressed to an email address received from senders other than the intended CP/GCP, via a single press of a

key/control button.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references
5 denote similar elements, and in which:

Figure 1 illustrates an overview of the present invention, in accordance with one embodiment;

Figure 2 illustrates a method of the present invention in accordance with one embodiment;

10 **Figures 3a-3b** illustrate the method for a client computer to provide separate and distinct email addresses for the user of the client computer, in accordance with two embodiments;

Figures 4a-4b illustrate two end user interfaces associated with the operation of the present invention;

15 **Figure 5** illustrates correspondence between email addresses and intended communication partners, in accordance with one embodiment;

Figure 6 illustrates a method of operation by the email service provider and the client computer to facilitate viewing of emails, in accordance with one embodiment; and

20 **Figure 7** illustrates an end user interface associated with the method of operation of **Fig. 6**, in accordance with one embodiment.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, various aspects of the present invention will be described. However, it will be apparent to those skilled in the art that the present invention may be practiced with only some or all aspects of the present invention. For purposes of explanation, specific numbers, materials and configurations are set forth in order to provide a thorough understanding of the present invention. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. In other instances, well known features are omitted or simplified in order not to obscure the present invention.

Parts of the description will be presented using terms such as scripts, applet, end-user interfaces, icons, and so forth, commonly employed by those skilled in the art to convey the substance of their work to others skilled in the art. Parts of the description will be presented in terms of operations performed by a computer system, using terms such as registering, notifying, sending, and so forth. As well understood by those skilled in the art, these quantities and operations take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, and otherwise manipulated through mechanical and electrical components of a digital system; and the term digital system include general purpose as well as special purpose data processing machines, systems, and the like, that are standalone, adjunct or embedded.

Various operations will be described as multiple discrete steps performed in turn in a manner that is most helpful in understanding the present invention, however, the order of description should not be construed as to imply that these operations are necessarily order dependent, in particular, the order the steps are presented.

Furthermore, the phrase "in one embodiment" will be used repeatedly, however the phrase does not necessarily refer to the same embodiment, although it may.

Referring now to **Figure 1**, wherein a block diagram illustrating an overview of the present invention in accordance with one embodiment is shown. As illustrated, client computer **102**, web sites **112** and **114**, and email service provider **100** are coupled to one another through internetworking fabric **120**. In accordance with the present invention, a user of client computer **102** uses the email service provided by email service provider **100** to enhance the privacy of its electronic communications with web sites **112** and **114**. The enhancements incorporated into client computer **102** and email service provider **100** to make possible the desired enhanced privacy will now be described in turn.

Sub 27 As illustrated, client computer **102** is equipped with browser **132** and enhanced email application **134**, which includes enhanced viewing function **144** and address manager **146**, in addition to conventional functions, such as compose function **142**, and send and receive function **144**. A user of client computer **102** uses browser **132** to visit, commerce or otherwise interact with web sites **112** and **114**. The nature of the interaction is a type that calls for the provision of an email address by the user of client computer **102** for web site **112/114** to send from time to time emails to user. As will be described in more detail below, the user of client computer **102** advantageously uses the enhanced functions provided to email application **134** (address manager **148** in particular) to provide separate and distinct email addresses to web sites **112** and **114**. For the illustrated embodiment, the email addresses are hosted by email service provider **100**, which includes enhanced functions (in cooperation with the enhanced functions of email application **134**) in facilitating the user of client computer **102** in quickly discerning whether the received

Sub A² 7

emails are from web sites **112** and **114** or not (i.e. the intended communication partners of the email addresses), as well as quickly disposing (if so desired) received emails from senders other than web sites **112** and **114** (e.g. a purchaser of the mail list of web site **112/114**). In one embodiment, the quick discernment and quick disposition is made possible by an automatic categorization feature provided by email service provider **100**.

Client computer **102** is intended to represent a broad range of computing devices and the like known in the art. Examples of client computer **102** include, but not limited to, desktop computers, laptop computers, palm-sized computing devices (also referred as personal digital assistants), enhanced wireless telephones with computing capabilities, set-top boxes and the like, such as those available from Hewlett Packard, Inc. of Palo Alto, CA, Nokia of Finland, Sony Corporation of N.J. Similarly, browser **132** is intended to represent a broad range of browsers known in the art, such as the Navigator from Netscape Communication of Mountain View, CA, and Internet Explorer from Microsoft of Redmond, WA. Furthermore, as will be apparent from the descriptions to follow, the target of the "interaction" may be communication partners other than web sites (e.g. friends and family members of the user of client computer **102**), and the "interaction" may be conducted through other non-browser type applications (e.g. through email application **134**). Likewise, except for the teachings of the present invention incorporated with email application **134**, email application **134** is also otherwise intended to represent a broad range of email applications known in the art, including, but not limited to, Outlook Express available from Microsoft Corporation of Redmond, WA, Lotus Notes available from IBM of Armonk, NY, and so forth.

Still referring to **Fig. 1**, web sites **112** and **114** are intended to represent a broad range of access, content as well as service providers, and the like, known in

the art. As alluded to earlier, in alternate embodiments, web sites **112** and **114** may actually be "non web server" type communication partners, to be described more fully below. In any event, web sites **112** and **114** are intended to represent at least (but not limited to) sites such as a merchandising site like Buy.com, a portal like

5 Yahoo.com, a content provider site like MP3.com, an auction site like eBay.com, a service provider site like Expedia.com, and so forth.

Sub A³⁷ Email service provider **100** may be a dedicated email service provider or may also offer other types of services or contents. That is, the privacy enhanced email service may be provided as an integral part of content provision, access service, or

10 services of other kinds. The private enhanced email service may be provided by a single or a cluster of servers interconnected via local or wide area networking. Suitable computer servers include but not limited to those available from IBM of Armonk, NY, and Sun Microsystems of Mountain View, CA.

Internetworking fabric **120** is intended to represent a broad range of public

15 and private data networks constituted with hubs, routers, switches, gateways and the like, known in the art. Suitable networking equipment (i.e. hubs, routers, and so forth) includes but not limited to those available from CISCO Systems and 3COM, both of San Jose, CA. In one embodiment, network **120** is the well known Internet. Thus, the communication links between network **120** and web sites **112-114**, client

20 computer **102** and email service provider **100** may be any one of a number of communication links known in the art, including but not limited to modem connections, digital subscriber lines (DSL), Integrated Service Digital Network (ISDN), cable modem, asynchronous transfer mode (ATM), frame relay and so forth.

Before further describing the present invention, it should be noted that the

25 terms "friends" and "family members" as used herein are intended to be broadly defined. No minimal friendship or familial relationship threshold must be satisfied

before an intended communication partner can be considered a "friend" or "family member".

Having now given an overview of the present invention, in particular the network environment, **Figure 2** illustrates a method of operation of the present invention, in accordance with one embodiment. As illustrated, at **202**, in response to a first need to provide a first intended communication partner (e.g. earlier described web site **112/114**, or simply a friend/family member, or a group of friends/family members of the user of client computer **102**), client computer **102** provides user with a first email address hosted by email service provider **100** for use by the user to provide to the first intended communication partner. At **204**, in response to a second need to provide a second intended communication partner (again, the partner may be web site **112/114**, a friend/family member, or a group of friends/family members of the user of client computer **102**), client computer **102** provides user with a second email address that is separate and distinct from the first email address (but preferably also hosted by email service provider **100**) for use by the user to provide to the second intended communication partner.

In other words, under the present invention, client computer **102** provides the users with multiple separate and distinct email addresses (preferably hosted by the same email service provider **100**) for use with respective communication partners (such as web sites) or groups of communication partners.

It is contemplated by the present invention that among the multitude of situations that give rise to the need for a email address by the user of client computer **102** is the situation where the user is registering with a web site, such as web site **112/114** (see e.g. **Fig. 4a**). Preferably, the need is automatically detected as well as automatically satisfied by address manager **148** of email application **134**.

The auto detection may be accomplished via any one of a number of techniques known in the art including but not limited to intercepting messages of browser **132** to determine whether a registration form including an email address field (**402** of **Fig. 4a**) is to be completed. Similarly, the auto population of the email address field (**402** of **Fig. 4a**) may also be accomplished via any one of a number of auto population techniques known in the art.

Another situation contemplated by the present invention that among the multitude of situations that give rise to the need for a email address by the user of client computer **102** is the situation when the user simply wants a email address for exclusive use with a friend/family member or a group of friend/family members. Such need may be explicitly communicated to address manager **148** of email application **134**, after the user listing all the applicable email addresses (see e.g. **Fig. 4b**, fields **404** in particular).

Figure 3a illustrates a method for client computer **102** to provide such separate and distinct email addresses for the user of client computer **102**, in accordance with one embodiment. At **302**, the user of client computer **102**, using email application **134**, registers with email service provider **100** for the privacy enhanced email service. In response, at **304**, email service provider **100** generates a collection of reserved email addresses hosted by email service provider **100**, and pre-provides them to address manager **148** of email application **134**. Email service provider **100** may form these separate and distinct email addresses in any one of a number of manners, e.g. by simply enumerating serial numbers and appending them to the user's identifier, such as XYZ0001@postoffice.emailservice.net, XYZ0002@postoffice.emailservice.net, and so forth (see **Fig. 5, 502**).

Thus, at **306**, when a need for an email address is "detected", address manager **148** selects the next available pre-stored separate and distinct email addresses for use by the user of client computer **102**, and records the email address of the intended communication partner or partners (i.e. web site **112/114** or a friend/family members or a group of friends/family members). The process repeats itself with each need for an email address being satisfied by a separate and distinct pre-stored email address. Periodically, at **308**, address manager **148** contacts email service provider **100**, and notifies email service provider **100** of the email addresses of the intended communication partner or partners of each separate and distinct email address in use. At **310**, email service provider **100** updates the previously provided separate and distinct email addresses with the corresponding email addresses of the intended communication partner or partners (see also **Fig. 5, 504**). In alternate embodiments, the notification, as well as the update, may be made "immediately" as each separate and distinct email address is selected and used.

Figure 3b illustrates a method for client computer **102** to provide such separate and distinct email addresses for the user of client computer **102**, in accordance with another embodiment. This embodiment differs from the earlier described embodiment in that there is no pre-provision of the separate and distinct email addresses. Instead, each of the separate and distinct email address is provided to client computer **102** in real time, as it is needed.

Similar to the earlier embodiment, at **402**, the user of client computer **102**, using email application **134**, registers with email service provider **100** for the privacy enhanced email service. At **404**, when a need for an email address is "detected", address manager **148** contacts email service provider **100** and requests for assignment of a separate and distinct email address for use with the intended

Sub A17

communication partner or partners. In one embodiment, the request integrally includes the email address or addresses of the intended communication partner or partners. In response, at **406**, email service provider **100** provides client computer **102** with a separate and distinct email address for use with the intended

5 communication partner or partners. In one embodiment, the separate and distinct email address may be generated in real time. In an alternate embodiment, email service provider **100** may select the separate and distinct email address from a cache of pre-generated separate and distinct email addresses for the user. The pre-generation e.g. may be done at registration time, and thereafter periodically.

10 In alternate embodiments where the email address or addresses of the intended communication partner or partners were not provided as an integral part of the request for the separate and distinct email address, the method further include **408**, where address manager **148** subsequently provides email service provider **100** with the address/addresses of the intended communication partner/partners, e.g. by

15 way of a "confirmation" message or messages. In response, as the earlier described embodiment, email service provider **100** updates the separate and distinct email addresses accordingly, noting the email address/addresses of their intended communication partner/partners.

20 **Figure 6** illustrates a method of operation by email service provider **100**, and client computer **102** to facilitate viewing of emails under the present invention, in accordance with one embodiment. As illustrated, at **602**, email service provider **100** receives emails addressed to email addresses hosted by provider **100** for its registered users or subscribers. At **604**, email service provider **100** organizes the

25 received emails by at least the email address addressed, and whether the emails were originated from the intended communication partner/partners or not. For the

illustrated embodiment, email service provider **100** characterizes the received emails by tagging the received emails in accordance with at least the aforementioned criteria, for subsequent delivering to client computer **102**. Email service provider **100** determines whether a received email was originated from an intended communication partner or not, by referencing email address correspondence information maintained (**Fig. 5**). All received emails addressed to an email address of a user originated from a source other than the known intended partners maintained by email service provider **100**, are considered from unintended communication partners, and characterize/tag accordingly. /

At **606**, client computer **102**, using email application **134**, connects to email service provider **100** to retrieve the stored received emails (tagged in accordance with at least the email address addressed and whether the originators were intended communication partners of the email addresses). At **608**, viewing function **146** of email application **134** presents the received emails for viewing by the user, using different "in-boxes" the different email addresses, and different "folders" for the received emails originated from the intended communication partner/partners, and received emails originated from sources other than the intended partners (see **Fig. 7**).

At **610**, in response to instruction from the user, viewing function **146** deletes all received emails addressed to an email address of the user not originated from the intended communication partner or partners. For the illustrated embodiment, viewing function **146** also presents an end user interface feature, such as a command button, to enable the user to provide the delete instruction with a single press of a key/control button (see also **Fig. 7**). /

Thus, it can be seen from the above description, by advantageously providing separate and distinct email addresses to a user to use to communicate with different intended communication partner or partners (such as a web site), received emails addressed to the email addresses of the user may be easily segregated, separating the emails originated from the intended partner or partners from the emails originated from other sources, thereby allowing the user to easily discern whether the intended communication partner/partners have sold or otherwise given away the user's email address. It can also be seen from the above description, the present invention advantageously allows the user to easily dispose of all the received emails from unintended sources. As a result, user experience is improved.

Accordingly, methods and apparatuses for a privacy enhanced approach to conducting electronic communications have been described. While the present invention has been described in terms of the above illustrated embodiments, those skilled in the art will recognize that the invention is not limited to the embodiments described. The present invention can be practiced with modification and alteration within the spirit and scope of the appended claims. The description is thus to be regarded as illustrative instead of restrictive on the present invention.